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RECREATION RESEARCH PROGRAM

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IMPACT OF THE ENERGY CRISIS ON CORPS OF ENGINEERS RECREATION PROGRAM

By Dennis B. Propst

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U. S. Army Engineer Waterways Experiment Station

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Increases in fuel costs and sporadic shortages in supply have had an impact on recreation use of Corps projects. A review of the literature examines the impact of energy prices and supplies on visitation and recreation use patterns at non-Corps recreation areas. In addition, visitation figures for Corps projects were examined for 1977 through 1979 to determine whether there was any correlation between 1979 fuel shortages and price increases and Corps

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visitation trends. Due to the quality and detail of Corps visitation data, only the broadest statements on future trends could be made. Generally, recreation use should continue to steadily increase at Corps recreation areas due to their proximity to population centers. In addition, visitors will tend to stay longer at one destination.

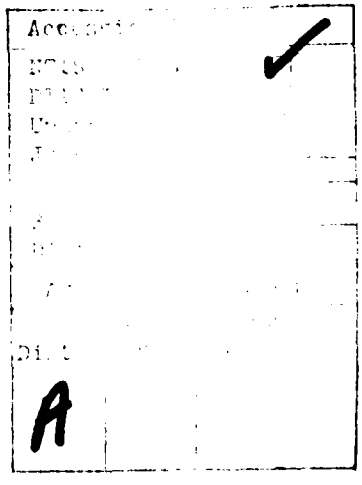
PREFACE

This report presents the findings of an investigation of the impacts of increased prices and shortages of motor fuel on outdoor recreation at U. S. Army Corps of Engineers Projects. Reported results are based on a review of secondary information sources; primary data collection was not included as part of this study.

The report was prepared by Dr. Dennis B. Propst who was at the U. S. Army Engineer Waterways Experiment Station (WES) under terms of an Intergovernmental Personnel Act Agreement with Virginia Polytechnic Institute and State University.

Dr. Adolph Anderson, WES, was Program Manager of the Environmental Laboratory (EL) Recreation Research Program. Mr. William J. Hansen was Leader of the Recreation Research Team. The study was under the supervision of Dr. Conrad J. Kirby, Chief, Environmental Resources Division, EL, and the general supervision of Dr. John Harrison, Chief, EL.

COL N. P. Conover, CE, was Commander and Director of WES during this study. Technical Director was Mr. F. R. Brown.



CONTENTS

CONVERSION FACTORS, U. S. CUSTOMARY TO METRIC (SI)
UNITS OF MEASUREMENT

U. S. customary units of measurement used in this report can be converted to metric (SI) units as follows:

Multiply	By	To Obtain
gallons (U. S. liquid)	3.785412	cubic decimetres
miles (U. S. statute)	1.609344	kilometres
miles (U. S. statute) per gallon	0.43	kilometres per cubic decimetre

IMPACT OF THE ENERGY CRISIS ON CORPS OF ENGINEERS RECREATION PROGRAM

PART I: INTRODUCTION

1. The energy "crisis" is a misleading concept, for it is no longer a crisis but a way of life. The word "crisis" connotes a turning point that will shape future events. Thus, the crisis is over. Societies will be faced with smaller supplies and rising prices of energy for many years to come.

2. What this ongoing energy situation means in terms of outdoor recreation planning and management at Corps of Engineers Projects is the topic of this report. Pressure from the Federal Government and the public's desire to conserve energy are causing noticeable changes in the way Americans recreate. Driving merely for pleasure and long auto tours are being replaced by shorter, more frequent outings to nearby recreation areas. Gasoline-guzzling off-road vehicles (ORV's), recreation vehicles (RV's), and boats are not disappearing. They are still being used, but by an increasingly smaller number of those who can afford them. They are also being replaced by more fuel-efficient machinery. Because the Corps has the responsibility for managing such a large recreation resource, much of which is located near large urban areas, future recreation trends will require careful monitoring. The role energy plays in shaping such trends must be considered.

PART II: REVIEW OF LITERATURE

3. This report is not based upon firsthand data collected by means of survey techniques. Instead, the results and conclusions stem from four secondary sources of information: the academic community, private research firms, non-Corps Federal agencies, and Corps Offices. The analysis of these sources reveals findings that may be of significance to Corps planners and managers. Additional useful sources of information that are not cited in the text are listed in Appendix A.

The First Energy Crisis

4. A logical starting point for discovering what impact the current energy situation is having upon the Corps' recreation program is to look at what happened during the crisis of 1973/74. The first energy crisis (Arab oil embargo) began in the latter half of 1973 and lasted until April of 1974. The most immediate result of the embargo was a 7 to 10 cents per gallon* increase in the price of gasoline. The Travel Price Index (TPI)** rose 15 percent in 1974 as opposed to a 6 percent rise in 1973 (Goeldner, Dicke, and Sletta 1975). For the first time in many years, the cost of travel increased at a faster rate than the U. S. Department of Labor's Consumer Price Index (CPI). As a result of this rise in travel costs, plus Sunday service station closures and reduced supplies, the total number of passenger miles for every month in 1974 (except December) was below that of corresponding months in 1973 (Goeldner, Dicke, and Sletta 1975). Sales of recreational vehicles were drastically reduced (Recreation Vehicle Industry Association 1979).

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* A table of factors for converting U. S. customary units of measurement to metric (SI) is presented on page 3.

** The TPI is based on those components of the Consumer Price Index representing goods and services usually purchased by the traveler while on a trip. These components include food away from home, hotel and motel charges, gasoline, fares on common carriers, recreational services, and incidentals (Goeldner and Dicke 1978). Each component is weighted according to its relative importance to household expenses for all travel items.

Recreation visitation

5. Visitation at National Park Service areas declined 13 percent during the Arab oil embargo. However, this decrease was due more to a shortage of supply and Sunday gas station closures than to an increase in price (U. S. Department of Interior 1978b). Also, the period of the embargo, October 1973 to April 1974, was not the peak use season for many National Park areas. After the embargo was lifted, second quarter visitation rates at National Parks declined by only 5 percent. Looking at the year as a whole (1974 versus 1973), National Park visitation actually increased by 0.9 percent. However, this was the first time since 1958 that decreases in National Park visitation were recorded. There were also noticeable increases in length of stay, increases in visits to urban recreation areas, and decreases in miles traveled per vacation (Goeldner, Dicke, and Sletta 1975).

6. National Forest visitation seemed to be virtually unaffected by the first energy crisis. Between 1971 and 1972, visits to the National Forests rose by 3.3 percent. Similar figures for 1972/73 and 1973/74 were 2.3 and 2.5 percent, respectively. National Forest visitation increased by 3.3 percent between 1974 and 1975.

7. The private camping industry experienced a slowdown in growth during the first energy crisis. This was partially because lower income people were forced to turn to nearby recreation areas. There were also more primary destination trips and fewer touring trips (Economic Research Associates 1976).

Corps visitation

8. Percentage increases in visitation on Corps Projects for the years 1971/72, 1972/73, 1973/74, and 1974/75 were: 5.8, 3.4, 3.8, and 6.8, respectively. Thus, there was a slight slowdown during the first energy crisis, but visitation rebounded strongly after the embargo was lifted.

After the First Energy Crisis

9. The period following the Arab oil embargo was a time of

assessing the effects of what had taken place. There was much speculation as to what course travel trends would take in the future and careful monitoring of key factors indicating whether or not tourism would return to its heyday of the 60's and early 70's.

10. From late 1974 to the end of 1978, there were signs of a rebounding travel and tourism industry. Between 1974 and 1976, there was little difference between the cost of travel and the Consumer Price Index (Goeldner and Dicke 1978). In fact, between 1974 and 1975, the economy outpaced the cost of travel. The price of gasoline rose but at a slower rate than inflation, and the real income of production workers was higher in 1978 than it was in 1974 (U. S. Department of Interior 1978b). These factors, plus the fact that Americans began purchasing more fuel-efficient cars, help explain why travel characteristics were not drastically altered. The U. S. Department of Transportation (1979) noted that travel on both urban and rural roads steadily increased between 1974 and 1978. Furthermore, the sales of RV's and pleasure boats showed substantial gains in 1975, 1976, 1977, and 1978 (U. S. Department of Interior 1978b; Recreation Vehicle Industry Association 1979; Owen 1979). However, those people who could not afford a new fuel-efficient automobile or who could not afford to drive long distances regardless of the type of vehicle were still heavily impacted by the price of gasoline.

Visitation trends

11. Overall, visits to both National Parks and National Forests began rising again following the first energy crisis. Visitation at National Park Service areas grew by 9.8 percent between 1974 and 1975 and by 12.1 percent between 1975 and 1976. The corresponding figures for National Forest visitation were 3.3 and 0.4 percent, respectively (Goeldner and Dicke 1978).

12. These figures include all types of visits. Of particular interest to the Corps may be the trends in boating and camping in developed campgrounds during this time. The number of persons camping in National Parks grew steadily but at approximately half the rate of visitation in general. The number of National Park campers decreased

during the summer of 1978 and increased during the fall of the same year (Bevins, LaPage, and Wilcox 1979). Camping at developed National Forest campgrounds was relatively stable, declining slightly in some years (Bevins, LaPage, and Wilcox 1979). In 1975, all major private campground franchisers reported registration gains, indicating a rebound from the energy crisis (Economics Research Associates 1976). For both public and private operators, developed camping prior to 1979 appeared to have been increasing by 1 to 2 percent per year, a rate slightly more than that of general population growth (Bevins, LaPage, and Wilcox 1979). In addition, most of the 1976, 1977, and 1978 data indicated that many campers were actually travelling farther from home than during the preceding years.

13. Recreational boating was one of the top five outdoor activities and grew at a steady rate between 1974 and 1978 (Owen 1979). Not only did the amount of time spent boating increase (Marmo 1980), but so did retail sales of boats, motors, accessories, safety equipment, and club memberships (Owen 1979). According to Marmo (1980), the types of boats that used the greatest number of passenger hours in 1976 were runabouts (27.5 percent), open lightweight boats (23.0 percent), cabin cruisers (13.8 percent), and sailboats (9.8 percent).

Research findings

14. The first energy crisis spawned a number of research efforts. With gasoline prices in the 55 to 70 cents per gallon range, researchers were interested in finding out how such prices were affecting recreational travel behavior and what effects additional gasoline costs would have on future travel plans. Both Converse (1980) and Peine, Marans, and Narris (1980) have summarized most of this research. Tables 1 and 2, which outline several related studies, were adapted from Converse (1980).

15. Price versus availability. Most of the research described in Tables 1 and 2 addressed the effects of gasoline price and availability on travel patterns. However, some of the results are either confusing or conflicting. For instance, some researchers (Badger, Schreiner, and Presley 1976; Williams, Burke, and Dalton 1979) argue that gasoline price is responsible for reductions in travel, while others (Kamp, Crompton,

and Hensarling 1979) find evidence that gasoline availability is the limiting factor.

16. To make matters even more confusing, researchers have claimed a number of intervening factors as determining whether price or availability has the greater influence. Williams, Burke, and Dalton (1979) state that the relative price of gasoline, not the absolute price, is the most critical factor in making travel plans. It is unclear what the authors mean by "relative" in the context of their article. However, it is assumed that "relative" refers to the price of gasoline relative to other economic factors, such as income, cost of food and lodging, etc.

17. Kamp, Crompton, and Hensarling (1979) suggest that the price/availability controversy is mediated by the type of vehicle driven. This group of researchers claims that the price of gasoline will have little impact on those who own recreational vehicles. In other words, this type of traveler will attempt to get the most out of the large capital investment already made. Thus, availability, not price, will be more of a limiting factor. For those with intermediate-sized autos, the opposite may be true. Travelers in this category may have less discretionary income than RV owners and may thus be more sensitive to price increases. The trend reverses itself again when looking at those who own small cars (greater than 22 miles per gallon). Seventy percent of the owners of small cars indicated that the price would have to exceed $2.50 per gallon before they would forego a trip like the one they were taking. Thus, availability may be more important to small car owners than price.

18. Norton, Hales, and Wood (1978), the only researchers in Table 2 to use observation as a measurement technique, noted several factors causing changes in recreation vehicle traffic patterns. Norton and his associates made their observations during a year when gasoline prices remained stable and there were no gasoline shortages. Thus, they assumed there were only minimal effects on travel by gasoline price and availability. The factors that did seem to have some influence on recreational traffic patterns were weather, holidays, special events, and hunting and fishing seasons.

19. Moncrief, Mouser, and Pitrak (1977) found that gasoline

availability and price seemed to affect travel propensity, the inclination to travel for pleasure under no formal obligation, in the same manner. They then suggested that income may be a key moderating variable. That is, travel propensity tended to be lower for low income persons mainly because of income not because of the impact of gasoline prices. Middle and high income persons, however, saw gasoline price as having a direct impact on their decline in recreational travel. Similar relationships between income and the impact of gasoline availability were not found. This finding led the authors to conclude that where gasoline restrictions or shortages occur, both high and low income people would curtail recreational travel.

20. About one half of the respondents in the U. S. Travel Data Center (1974) survey stated that gasoline shortages caused them to plan fewer weekend trips in 1974. Those trips that were planned would be closer to home than before shortages existed. Another finding was that an increase in the price of gasoline to $1.00 per gallon (the price in 1974 was 55 to 60 cents per gallon) would have a severe effect on vacation travel. These general conclusions, however, were tempered somewhat by regional differences. For instances, the perceived severity of gasoline shortages varied significantly from region to region. Individuals were able to identify which regions had less gas than their own, but there was no consistent decline in preference for those regions identified as having gas shortages. From 40 to 50 percent of those living in New England and many of the western states said they would cancel their vacation trips if gasoline reached $1.00 per gallon. On the other hand, significantly fewer people in states such as New York, New Jersey, Pennsylvania, Maryland, Delaware, and some of the southern states said they would cancel their trips at the same price.

21. Impact versus no impact. An even more basic question than the relative influence of gas price and availability is whether or not energy conditions had a significant impact on recreational travel. Gasoline prices and availability have been seen to limit recreationists' mobility substantially (Williams, Burke, and Dalton 1979; Solomon and George 1976) and to have little or no effect on their travel patterns

(Belvins, LaPage, and Wilcox 1979; Norton, Hales, and Wood 1978; Moncrief, Mouser, and Pitrak 1977; U. S. Travel Data Center 1974).

22. One reason for such a discrepancy should be evident from the preceding section. That is, the direct effect of energy conditions on people's travel behavior has been difficult to verify because the effects of gasoline price and availability are confounded with numerous other factors. From a research standpoint, it is extremely difficult to separate the effects of energy conditions from the effects of other constraints.

23. Other methodological problems. Besides the confounding problem mentioned above, some research conclusions are based upon fairly small sample sizes in fairly restricted geographic settings (see Kamp, Crompton, and Hensarling 1979; Norton, Hales, and Wood 1978; Solomon and George 1976). This means that the ability to generalize to other regions or other populations is limited.

24. As can be seen in Table 2, other conclusions are based upon low response rates. This is not necessarily bad, as long as some attempt has been made to check for nonresponse bias. Such checks are rarely mentioned, and, if they are mentioned, no details are given. Thus, for most of the studies in Table 2, it is not known whether or not those who responded to the survey instrument differ in some systematic way from those who did not respond.

25. Those surveys covering the entire Nation or a large geographic region provide valuable information because they obtain responses from a broad cross section of the U. S. population. However, for planning and management purposes, it is necessary for the Corps' personnel to know the characteristics and perceptions of both onsite and offsite recreationists. For instance, around 30 percent of the recreationists on Federal land in 1977 took fewer and shorter recreational trips than normal due to gasoline prices (U. S. Department of the Interior 1978a). This alone is useful information, but becomes even more meaningful when compared to the responses of the general population. Responding to the same questions, 50 percent of the general household respondents stated that they had taken fewer and shorter trips. Thus, the recreationists on

Federal land were less constrained by the "current" price of gasoline than the general population. Badger, Schreiner, and Presley (1976) surveyed both onsite recreationists and local homeowners, but did not ask the two groups identical questions. Thus, no comparisons can be made.

26. A final methodological problem involves the reliability of responses to hypothetical questions of the form, "What would happen if...?" For example, "Would you take fewer vacation trips if the price of gasoline was $2.00 per gallon?" The problem with such items is that people are asked to speculate as to what actions they would take in the future. Conclusions based on responses to these questions must be regarded as tenuous at best.

27. To illustrate, McCool et al. (1974) asked persons what would happen if the gas price, then around 50 cents per gallon, climbed to $1.00 per gallon. Forty-nine percent of the respondents said they would not travel. With a similar, though broader, survey conducted during the same time, the U. S. Travel Data Center (1974) found that 32 percent of the respondents would definitely cancel their vacation trips with $1.00 per gallon gas. From the 1977 Nationwide Outdoor Recreation Survey (U. S. Department of Interior 1978a) it was learned that 80 percent of the general population and 76 percent of the Federal land recreationists would limit their trips if the price of gasoline doubled in 6 months.* Of the travelers interviewed in the Kamp, Crompton, and Hensarling (1979) study, 38.5 percent said they would forego their vacation trip if gasoline prices climbed to $1.00 per gallon. Finally, early in 1979, just before prices really soared, Williams, Burke, and Dalton (1979) found that only 14 percent of the respondents they interviewed would not travel if prices reached $1.00 per gallon. Even though such hypothetical questions are useful as measures of what individuals are thinking at one point in time, little reliability can be placed in what people say they will do in the future. Gasoline prices have indeed doubled since 1977 and are well beyond the $1.00 per gallon cutoff figure

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* A doubling in price at the time of this survey would make gasoline cost about as much as it does today.

of many of the respondents in the studies just mentioned, yet people still appear to be travelling a great deal.

28. Alternate modes of transportation. Despite all of these conflicting results and methodological problems, there is one finding on which most studies tend to agree. Although individuals admit that travel by private motor vehicle would be reduced under high price or fuel shortage conditions, they prefer not to travel at all or make shorter trips rather than use alternate modes of transportation (U. S. Travel Data Center 1974; McCool et al. 1974; U. S. Department of Interior 1978a; Williams, Burke, and Dalton 1979; Kamp, Crompton, and Hensarling 1979). This reluctance to use other means of transportation underscores the importance of the private automobile to the life-styles of most Americans. Such a finding also seems to indicate that economic conditions are not yet severe enough to cause most people to perceive public transportation as being a feasible alternative.

Corps visitation

29. Overall, Corps visitation during the mid-1970's continued to climb in the 4 to 6 percent per year range (Goeldner and Dicke 1978). There was an overall 3.4 percent increase in visitation between 1977 and 1978 with only 8 of 33 Corps Districts showing a decline in attendance (see Table 3).

30. On eight projects* in the Southwestern Division (SWD) in 1974, Badger, Schreiner, and Presley (1976) found that 15 percent of the visitors had their travel plans adversely affected by gasoline shortages. Comparing 1975 with 1974 data, these same researchers noted that 29 percent of the visitors took fewer trips, only 6.5 percent stayed fewer days, and 28 percent drove fewer miles. Fifty-six percent of the respondents indicated that the fuel shortage did not limit their recreational activities; 40 percent said that the dominant limiting factor was gasoline price.

31. During 1976 and 1977, fewer people in SWD as a whole believed

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* Keystone, Ft. Gibson, Eufaula, Tenkiller, Oolagah, Oklahoma Main Channel, Arkansas River above Little Rock, and Arkansas River below Little Rock.

that energy conditions were affecting travel behavior than in the Badger, Schreiner, and Presley study. Corps personnel in SWD conducted surveys during the summer of 1976 and spring of 1977 to update their vehicle load factors.* Of over 28,000 visitors surveyed at separate projects, less than 8 percent indicated that energy conditions were limiting their number of visits.

32. Apparently, energy conditions prior to 1979 had very little impact on attendance at Corps recreation areas. In the Badger, Schreiner, and Presley study, a number of visitors indicated some change in plans due to gasoline shortages; however, attendance at the eight study projects rose by 1.5 million recreation days of use** between 1974 and 1975. Furthermore, between 1975 and 1976, all Districts in SWD showed gains. These gains are significant since SWD contains 84 projects and accounts for about 30 percent of the total annual recreation use in the Corps of Engineers. Of those projects in SWD showing declines between 1975 and 1976, the most frequently cited reasons were: low reservoir levels, unfavorable weather, more accurate visitation use data, and completion of a similar nearby project.† The fuel shortage was listed as a contributing factor only once; other energy conditions were never mentioned.

33. As part of the 1977 National Outdoor Recreation Survey (U. S. Department of Interior 1978a), 184 visitors to 23 Corps projects in various parts of the country were asked several questions related to gasoline prices. Their responses in comparison with responses of visitors to recreation areas managed by two other Federal agencies are shown in Table 4. The only noticeable difference is that, in terms of fewer and shorter trips, Corps visitors felt more constrained by the price of gasoline than either National Park or Forest Service visitors. However, there is no indication as to whether or not these differences

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* Factors such as the average number of persons per vehicle used to convert traffic counts to visitation.

** A standard unit of use consisting of a visit by one individual to a project for recreation purposes during any reasonable portion or all of a 24-hr period.

† Unpublished visitation data, 1976, U. S. Army Engineer Division, Southwestern, Dallas, Tex.

are significant. These results compare favorably with the study by Badger, Schreiner, and Presley (1976) in which 29 and 28 percent of Corps visitors took shorter and fewer trips, respectively.

Summary

34. The first energy crisis (1973/74) had immediate and noticeable impacts on recreational travel in the United States. People drove fewer miles and drastically curtailed their purchases of recreational vehicles. There was also a slowdown in the use of National Park Service, National Forest Service, and Corps of Engineers recreation areas. For the first time since 1958, decreases in National Park visitation were recorded.

35. After the Arab oil embargo ended, the travel and tourism industry seemed to recover immediately. Once again, the economy grew at a faster rate than the cost of travel. Travel on all types of roads increased; sales of RV's and pleasure boats showed substantial gains. National Parks, National Forests, and private campgrounds noted gains in visitor registration.

36. During the mid-1970's, there were a number of research efforts aimed at discovering what impacts fuel prices and availability were having on recreational travel behavior. The results of some of these studies, however, were based on low response rates, small sample sizes, restricted populations, and response to hypothetical questions. Furthermore, results were sometimes contradictory.

37. There are several general statements that can be made regarding these studies:

a. The price of gasoline relative to other economic factors appears to be more of a factor influencing recreational travel decisions than the absolute price.

b. Whether or not gasoline price or availability is the more important determinant of travel behavior seems to be obscurred with other factors: type of vehicle driven, weather, holidays, hunting and fishing seasons, income, and region of residence.

c. Americans prefer not to travel at all or to take shorter trips rather than use forms of transportation other than the automobile.

38. Energy conditions between 1974 and 1979 had very little impact on Corps of Engineers visitation. Few Corps visitors surveyed indicated that either gasoline prices or availability were reducing their number of visits.

PART III: CURRENT ENERGY SITUATION

39. In this section, "current" means that period of time from the spring of 1979 to the present. As during the first energy crisis, the 1979 Travel Price Index grew at a faster rate than the Consumer Price Index, but this time the difference was much greater. For August 1978 to August 1979, the TPI increased by 16.9 percent compared to an 11.8 percent increase in the CPI (U. S. Travel Data Center 1979a). During the second quarter of 1979, travel prices outgained consumer prices by 74 percent (U. S. Travel Data Center 1979b). Inflation in gasoline costs was the primary cause of travel price increases. For 1979 as a whole, gasoline prices climbed by nearly 68 percent (Van Doren 1980). The cost of gasoline in the third quarter of 1979 rose by nearly 30 percent over the year earlier period (U. S. Travel Data Center 1979b).

40. Despite such high prices, people continued spending a good deal of money on travel. Travel industry sales during the second quarter of 1979 grew more rapidly than the U. S. economy (U. S. Travel Data Center 1979b). Only the dollars spent on food, housing, and income taxes in 1979 exceeded that spent on travel; travel expenditures exceeded the amount spent on national defense and automobiles (Van Doren 1980). However, most of these gains in actual dollars spent were negated by inflation (U. S. Travel Data Center 1979b).

41. As further evidence of the impact of poor economic conditions, U. S. highway travel during the first 10 months of 1979 decreased by 1.4 percent as compared to the same period of 1978 (U. S. Department of Transportation 1979). Because of high prices and uncertainty over gasoline availability, travelers choose either to cancel or shorten their trips away from home rather than switch to other modes (U. S. Travel Data Center 1979b).

42. The Recreational Vehicle Industry Association (1979) reported that RV shipments through October 1979 were down 48 percent compared to shipments during the same period in 1978. The biggest decrease in shipments were in all types of motor homes, including van campers and chopped vans. The smallest decreases were in towable RV's (including truck

campers) and folddown camping trailers.

43. The only really bright spot in tourism during 1979 was the amount of foreign visitation to the United States. Compared to countries with astronomical inflation rates like Great Britian and Japan, the United States is a relatively inexpensive place to visit. In fact, the rapid increase in foreign arrivals to the United States in 1979 created the first favorable tourist balance during the postwar period (U. S. Travel Data Center 1979b).

Recreation Visitation Trends

44. National Park visitation for the month of July 1979 compared to July 1978 was down by 17.7 percent (U. S. Travel Data Center 1979a). For the entire year of 1979, visitation decreased by 7.6 percent (National Park Service 1979). Percentage changes between 1979 and 1978 according to categories of park types based on distance from population centers and population size were: urban parks (+1.4%), suburban (+1.0%), outlying (-7.5%), rural (-15.1%), and remote (-7.7%). So far, this trend toward increasing visitation in parks near urban areas and decreasing visitation in the more remote parks is continuing through June of 1980 with even greater intensity than before.*

45. Visits to the National Forests seemed to be relatively unaffected by energy conditions. There was a 2.8 percent increase in overall visitation, with the biggest increases recorded in the Alaska Region (+20.5%), the Intermountain Region** (+8.5%), and the Rocky Mountain Region** (+8.5%). The Eastern Region† (-9.0%) accounted for the largest decline in visitation (U. S. Department of Agriculture

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* Personal communication, October 1980, K. E. Hornback, Chief, Statistical Section, Branch of Special Programs, National Park Service, Denver, Colo.

** Intermountain Region - Nevada, Utah, Southern Idaho, and Southwest Wyoming; Rocky Mountain Region - central and eastern Wyoming, Colorado, Kansas, Nebraska, and most of South Dakota.

† Eastern Region - Minnesota, Iowa, Missouri, Wisconsin, Michigan, Illinois, Indiana, Ohio, West Virginia, Maryland, Delaware, Pennsylvania, New Jersey, New York, and all of the New England States.

1980). These figures apply only to developed recreation areas (e.g., campgrounds, winter sports sites) not to dispersed sites (e.g., roads, trails, rivers). Visitation at campgrounds, which receive nearly half of the total recreational use of all developed sites on the National Forests, fell by 1.3 percent between 1978 and 1979. However, recreational use of winter sports sites, which account for about 16 percent of the total National Forest visitation, increased by 21 percent.

46. Recreational use of State parks was more in line with National Park visitation. Overall, visits to the State parks were down by 8.4 percent in the second quarter of 1979 compared to the same quarter in 1978 (U. S. Travel Data Center 1979a).

47. Finally, between 1978 and 1979, the National Campground Owners' Association monitored weekly occupancy data from a nationwide sample of both public and private campgrounds (Cole and LaPage 1980). Although these data are based on a fairly small sample size and limited time frame (2 years only), there was a 14 percent drop in occupancy between 1978 and 1979. The greatest decline in occupancy was in the Western region, coinciding with the gasoline shortages in California.

Research Findings

48. Due to delays in publication of research results, there are currently few published studies of people's travel behaviors and perceptions available. One source of information involving 1979 data is the study by Williams, Burke, and Dalton (1979) previously described in Tables 1 and 2. However, these data were collected in March 1979, just before gasoline prices started their rapid upward swing. In addition, the conclusions are based on a response rate of only 22.4 percent with no apparent checks for nonresponse bias.

49. To summarize, 55 percent of those respondents in the Williams, Burke, and Dalton (1979) study who planned to travel said that their travel plans for 1979 were unchanged; 43 percent said they would travel less. It would be interesting to know how many of these same people actually did change their travel plans in 1979.

50. In earlier studies previously described (e.g., U. S. Travel Data Center 1974; McCool et al. 1974), it was noted that anywhere from 32 to 49 percent of the respondents said they would not travel if gasoline prices reached $1.00 per gallon. Almost as if they were expecting $1.00 per gallon to hit the market, however, only 14 percent of the respondents in the Williams, Burke, and Dalton (1979) study said they would not travel with motor fuel priced at this level. At $1.25 per gallon, 34 percent said they would not travel; for prices of $1.50 and $2.00 per gallon, a similar response not to travel was voiced by 45 and 48 percent of the respondents, respectively.

51. In the same study, when asked what they would do if limited to 40 gal of gasoline per licensed vehicle per month, 80 percent of the respondents said that they would take fewer trips. In addition, 76 percent said they would travel closer to home, 54 percent said they would stay longer at their destination, and 48 percent said they would visit only one destination.

52. During April and May of 1979, just 2 months after the Williams, Burke, and Dalton (1979) study, Burke and Williams (1979)* found that only 8 percent of the respondents in six metropolitan areas said they would not travel with gasoline priced at $1.00 per gallon. The corresponding figures for $1.25 and $1.50 per gallon were 33 and 51 percent, respectively.

53. In October of 1979, $1.00 per gallon gasoline became a reality. The only available research findings after this price level was reached are reported by Corsi (1980). In a November survey of 1500 residents of New York state, Corsi notes that 16 percent said that they actually cancelled vacation plans during 1979; if prices reached $1.50 per gallon, only 16 percent said that they would cancel such plans.

54. Another result of the Burke and Williams (1979) and the Corsi (1980) surveys was that increasing gasoline prices and short supplies

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* This study was based on a mail survey of 1500 randomly selected households in Chicago, Dallas-Ft. Worth, Los Angeles, New York City, Phoenix, and Salt Lake City. With followup attempts, the authors obtained a 23.1 percent response rate.

caused travelers to move their vacation destinations closer to home. In addition, both studies supported earlier findings that people are more apt to cancel trips, buy more fuel-efficient vehicles, and reduce their use of RV's rather than utilize public transportation.

55. It is difficult to compare the results of these three studies with much confidence due to the low response rates obtained or differences in geographic locations. However, these studies underscore the methodological problem described earlier of relying on people's responses to hypothetical questions as a means of predicting future trends in recreational behavior. These studies also lend more support to the statement of Williams, Burke, and Dalton (1979) that the relative price of gasoline is a more critical factor than the absolute price.

Corps Visitation

56. Table 5 summarizes data that may be pertinent to future recreation trends in lieu of present energy conditions. As Table 5 indicates, overall visitation at Corps of Engineers projects increased by 2.4 percent between 1978 and 1979. However, this figure must be interpreted with caution. During 1979, based on instructions in a Recreation Resources Management System (RRMS) Workshop, the Missouri River Division (MRD) changed the interpretation of the definition of area used to measure recreation days of use. For 1977 and 1978, the interpretation of area included the total project area. In 1979, based on the Workshop instructions, MRD switched the definition of area to indicate individual recreation areas within the project boundary. Recreation days of use will always be substantially greater using the latter definition considering the fact that many visitors use more than one recreation area each day. Thus the increase in MRD figures between 1978 and 1979 is an artifact of the data and not necessarily due to an actual increase in attendance. If MRD's figures are disregarded, overall recreation use on Corps projects between 1978 and 1979 actually decreased by nearly

5 percent. If MRD's 1978 figures are multiplied by 2* to make them more compatible with the 1979 figures, the result is nearly the same: overall use of Corps recreation facilities dropped by 4 percent between 1978 and 1979.

57. That an overall decrease in recreational use occurred is not too surprising considering that, excluding MRD, 15 of the 33 Districts in Table 5 showed decreases in recreational use between 1978 and 1979. The comparable figure for the 1977/78 comparison is 8 out of 33 Districts. In addition, the top three Divisions in terms of recreational use, Ohio River, South Atlantic, and Southwestern, all registered decreases.** Finally, 185 out of 426 or 43 percent of all Corps projects saw declines in recreational use from 1978 to 1979. This statistic (185 out of 426) underestimates the true number of projects showing declines in use because a decline is not recorded as such unless the decrease in recreational use of a project exceeds 5 percent (U. S. Army Corps of Engineers 1980).

58. Regardless of the precision of the numbers in Table 5, these were obviously significant decreases in recreational use between 1978 and 1979. A closer inspection of Table 5 reveals that a majority of Corps projects are located close to population centers. Eighty-one percent (345 out of 426) of all Corps projects are located within 50 miles of at least one Standard Metropolitan Statistical Area (SMSA). Furthermore, 170 of these 345 projects are located within 50 miles of two or more SMSA's. In the New England Division, 25 out of 31 projects (81 percent) are located within 50 miles of three or four SMSA's. Other Districts with a majority of projects within 50 miles of three or four SMSA's include: Los Angeles (75 percent), Baltimore (67 percent), Philadelphia (60 percent), and Louisville (56 percent).

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* Planners in the MRD recommended the use of 2 as an appropriate factor because, from past experience, they felt confident in assuming that each visitor visited two recreation areas on the average each day.

** During 1979, these three Divisions accounted for nearly 64 percent of the recreational use of Corps projects nationwide.

59. Another interesting fact is that 120 out of the 185 projects (65 percent) showing declines between 1978 and 1979 were within 50 miles of at least one SMSA of 250,000 or more population. Not shown in Table 5 is the finding that 75 percent of the projects (9 of 12) in the Los Angeles District are within 50 miles of three or four SMSA's of 250,000 or greater population. Corresponding figures for two other Corps elements in this same category are: New England Division, 61 percent (19 of 31 projects) and Philadelphia District, 60 percent (3 of 5 projects).

Reasons for declines in use

60. The decreases in attendance at a large number of projects close to large populations could lead to one of two possible conclusions: (1) people were so stunned by the sharply rising gasoline prices in 1979 that they cancelled many recreational outings, regardless of the distance factor, or (2) other factors (e.g. weather) besides energy and economic conditions kept many visitors away from Corps projects. These two conclusions are not mutually exclusive. Some combination of both high gasoline prices and bad weather, for example, could have caused many Corps visitors in certain regions to cancel their trips.

61. One means of shedding some light on reasons for decreases in visitation is to find out from the project managers what happened in 1979. At the end of each calendar year, project managers are required to submit written narratives accounting for increases or decreases in recreational use. A review of a sample of the narrative reports revealed that bad weather conditions were the reasons most often reported for declines in recreational use. A common response was that excessive precipitation or storage operations created high water levels that flooded many recreational developments. For instance, the New England Division reported slight to large decreases in use of its 31 projects primarily due to bad weather. Those projects not affected by water storage operations showed increases of up to 50 percent over 1978 levels.

62. The next most frequent reason cited for decreases in use were energy conditions, such as fuel costs, fuel availability, and overall

inflation. Apparently, many Corps managers believe that the energy situation was affecting the travel behavior of their visitors. Nonetheless, the energy situation was mentioned only once out of 19 narrative reports representing nearly 100 projects* as being the primary cause of decreases in recreational use. Instead, justifications usually listed a combination of factors such as fuel price, bad weather, and poor fishing. Other factors mentioned infrequently included strict enforcement of regulations, low waterfowl populations, redesign for tighter control of campgrounds, updating inaccurate load factors and re-entry factors, no security stations in primitive campgrounds, recreation areas closed for repair, and distractions due to campground construction.

63. Several Corps personnel felt that certain of these other factors overcame the effects of fuel-related problems. For example, the Omaha District noted that excellent fishing on several of its lakes kept the number of visitors high despite energy problems. More of the fishing activity occurred during the middle part of the week and less on weekends. This caused the Omaha District to comment, "surprisingly, even after the June gas shortage was alleviated, the pattern of lower weekend visitation continued for the rest of the summer season."

64. However, more weekday than weekend use was generally the exception, not the rule. Some areas noted large increases in use all week long. For instance, a separate report on reasons for needed rehabilitation of recreation areas in the South Atlantic Division (SAD) reads:

> The weekend use at SAD parks has not decreased with the fuel shortage. Lake Managers, whose projects are located within a tank of gasoline away from large metropolitan populations, are experiencing vast increases in the number of families who are spending their vacations at the lakes. Visitors who arrive to use the lakes on weekends are now finding that the campgrounds have been near capacity all week long accomodating people on vacations.

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* Some of the narrative reports reviewed were done either on a District-wide or Division-wide basis. This is why there were fewer reports than actual number of projects represented.

65. Some reports reviewed spoke of increases in weekend use whether or not there was an overall decrease in total visitation. To illustrate, the narrative report for Greer's Ferry Lake (Arkansas) states that weekend use continued to be high during 1979 with a maximum demand for day use facilities. The Greer's Ferry report also indicated that the maximum number of people and vehicles in parks on weekends may soon have to be controlled.

Changes in type of user and activities

66. The type of user and the activities engaged in while visiting Corps projects did change during 1979, although, once again, the reasons are not just energy related. A few examples from the narrative reports illustrate this point:

a. Omaha District: The largest visitation drop was among sightseers. Camping was lower at most projects due to fewer visitors from long distances. However, the total number of local campers having the project as their destination increased somewhat. Campground use by transient carpers enroute to other destinations definitely decreased.

b. Shenango Lake (Pittsburgh District): Losses in visitation occurred at remote areas while developed areas showed increases. There was a trend toward more people recreating closer to home.

c. Greer's Ferry Lake (Little Rock District): There was a high interest in all water activities, with interest in sailing growing rapidly.

d. Benbrook Lake (Ft. Worth District): Boating was very popular despite the energy crisis and is expected to increase as more Dallas/Ft. Worth boaters use nearby Benbrook.

e. Lake Ouachita (Vicksburg District): Activities requiring more fuel, such as sightseeing, frequent day use visits, boating, and remote camping, showed declines. Camping in fee areas remained fairly stable because the users lived within a few hours drive. Repeated short-term camping trips and the number of out-of-state campers decreased. For all campers, the length of stay generally increased.

f. Mississippi River Pools 11-22 (Rock Island District): Surveys during the summer of 1979 showed that the number of people per vehicle increased while the number of sightseers and recreational boaters decreased.

g. Lake Shelbyville (St. Louis District): There was an overall 10 percent decrease in recreational use, but the fees collected in campgrounds rose by 16 percent over 1978 levels. This indicates either an increase in the number of campers or in the length of stay per camping party.

Fuel problems seen as increasing or not affecting visitation

67. Though several Districts reported that fuel problems were a primary cause of changes in visitation, not all of them felt that high gasoline prices and fuel shortages had negative impacts. As an example, the Portland District has 11 out of 16 projects located either partially or totally within at least one SMSA (see Table 5); in 1979, there was a 12 percent increase in use over 1978. In Portland District's narrative report for 1979, the reasons for this increase were population growth and uncertain gasoline supplies causing people to make more trips to nearby recreation areas.

68. To illustrate further, Lake Mendocino in the San Francisco District is about 120 miles from a metropolitan population in excess of 3 million. Thus, most of these people could make a round trip to Lake Mendocino on less than one tank of gas. Personnel in the San Francisco District office indicated that day use at Lake Mendocino was up tremendously in 1979. Overall visitation increased with heavy use occurring on weekdays as well as on weekends. Furthermore, there was frequent traffic congestion and inadequate parking. As pointed out by District personnel, Californians have been used to paying high gasoline prices for a long time, so expensive fuel is not much of a deterrent.

Regional differences

69. All the above discussions reveal that there are complex interrelationships among the energy situation and other factors influencing recreational use of Corps projects. Furthermore, these interrelationships seem to be tempered by regional influences.

70. In the Far West, either there are ample nearby recreational opportunities or people are used to paying high gasoline prices. Thus, in this region, fuel shortages may have a greater impact than fuel prices. The same cannot be said of any other portions of the West and

Midwest. In the Corps' Southwestern, South Atlantic, Ohio River, and Missouri River Divisions, the impact of fuel problems appears to have been obscurred by other factors (bad weather, good fishing, campground construction, changes in use reporting procedures, etc.). In the East, Northeast, and Great Lakes regions, fuel prices seem to have had little influence as gains were noted in all of these areas; here, as in the Far West, fuel availability or other factors may be more critical. As has already been demonstrated, a further complicating matter is that within these large regions and Divisions there are energy-related influences that vary on a District-by-District and project-by-project basis.

Fee receipt data

71. Early in the planning phases of this study, it was hoped that the fee receipts* collected at Corps campgrounds would provide some valuable data needed to help clarify some of the complications described above. The idea was that, if retained over a period of several years, fee receipts could provide reliable data on trends in visitation, size of party, length of stay, and origin of visitors. However, communication with all 10 Divisions and 25 Districts soon revealed that fee receipt information would be extremely expensive and sometimes impossible to obtain. In nearly all instances, fee receipts are sent directly from individual projects to the Districts' Finance and Accounting Offices. Rarely do personnel in the recreation offices ever see the fee receipts. Finance and Accounting summarizies only the amount of money collected at each project and then stores the receipts in boxes. Projects also store copies of the fee receipts for periods of times ranging from 6 months to 5 years. The receipts are then discarded. Most often, receipts are destroyed after 1 year; all the information on the receipts, except for dollar amounts, is thereby lost forever.

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* During peak use seasons at all Corps fee areas nationwide, gate attendants collect copies of fee receipts given to each visitor. Fee areas include developed campgrounds and group camping areas. Besides amounts of money collected, these receipts also show size of party, length of stay, car license, and state of origin.

72. It is partially for this reason that the Recreation Research Program (RRP) at the U. S. Army Engineer Waterways Experiment Station (WES), Vicksburg, Miss., is developing and field testing an alternate fee area registration form and system for reporting its contents (Propst and Abbey 1980). Not only will this form contain all the information on the original fee receipt form, it will also contain data on types of recreational equipment, number of repeat visits, and whether or not the area is a destination or stopover on a longer trip. Once these data are computerized, the new receipts will provide one means of making generalizations about recreation trends on a local, regional, or national basis. One advantage of implementing this system is that an investigation dealing with the impacts of energy conditions on recreational use could be completed in only several months with more reliable data than now exists and a considerable savings in costs.

Summary

73. During the first year of the current energy situation (1979), travel prices rose a great deal faster than consumer prices. This was primarily due to a drastic jump in the price of gasoline. Highway travel in the United States decreased in 1979 over 1978 levels; RV shipments plummeted. The United States, however, continued to be seen by foreign travelers as a bargain country to visit from abroad.

74. Visits to the National Parks decreased by 7.6 percent during 1979. However, decreases occurred primarily in outlying, rural, and remote parks while suburban and urban parks gained in attendance. The same trend of decreasing visitation at remote National Parks and increasing visitation at National Parks located near urban areas seems to be continuing in 1980.

75. For recreation only at developed areas, National Forest visitation increased slightly between 1978 and 1979. There was a slight decrease in the use of developed campgrounds while attendance at winter sports sites climbed by 21 percent.

76. So far, published research results of people's perceptions

and behaviors during 1979 are scarce. The limited results that are available suggest that high gasoline prices and short supplies had noticeable impacts on people's tendencies to travel for recreational purposes. These impacts included cancelling vacation trips, taking more advantage of opportunities close to home, and planning to buy more fuel-efficient vehicles.

77. For the Corps of Engineers, changes in recording procedures make it difficult to compare 1978 and 1979 figures. However, it appears that, during this time, overall use of Corps facilities dropped by 4 to 5 percent. The most dramatic decreases were shown in Districts in the Southwestern, South Atlantic, Ohio River, and Lower Mississippi Valley Divisions. The New England, North Atlantic, North Central, North Pacific, and South Pacific Divisions all showed gains in recreational use.

78. Fuel prices and availability had some impact on recreational use of Corps facilities, but the extent of this impact is unknown. This is primarily because the effects of energy conditions are obscurred by the effects of other factors (e.g., weather, water levels, quality of fishing, regional differences). In some instances, such factors as bad weather, good fishing, or the fact that visitors were already used to paying high gasoline prices overcame the influence of fuel-related problems.

79. Noticeable trends in 1979 that seemed to be occurring on Corps projects included: increased use of Corps lakes as vacation destination sites, more weekday use, increased length of stay, fewer visitors making a large number of trips of short duration, fewer sightseers, and more use by locals who can make a round trip on one tank of gas or less. Increases or decreases in certain activities such as powerboating, sailing, and picnicking varied on a local and regional basis.

80. Complex interrelationships among all the factors influencing visitation at Corps projects make the prediction of recreational use in lieu of energy conditions tenuous at best. In some areas, distance from population centers seems to be a major determinant of use. However, in

other areas where high gasoline prices seem to have little effect, fuel availability may be more critical than distance.

81. Because of the manner in which the information recorded on fee area receipt forms is presently being handled by various Corps elements, much valuable trend data are simply being discarded. For this reason, a new receipt form and system of recording, storing, and reporting its content are now being developed. When this new system is implemented, knowledge of what influences energy conditions are having upon visitation patterns will be based upon more reliable data than now exist.

PART IV: FUTURE ENERGY IMPACTS

82. At this point, it should be apparent that energy and tourism possess an extremely complex relationship mediated by numerous intervening factors. It is difficult enough to determine how much of the past and present changes in recreation patterns is due to energy conditions, much less to be able to predict what will happen in the future. With a presidential election imminent, uncertainties in the world oil situation, and vacillations in the United States' energy policy, prediction is nearly impossible. Nonetheless, the data reviewed so far lead to several general conclusions that recreation planners and managers should consider.

83. One area that this report has yet failed to address, but which seems to be responsible for many current trends, is the influence of changing life-styles on leisure patterns. Since life-styles are altered in part by energy conditions, some time will be spent in this section discussing what such changes mean for the recreation industry in general. The final two sections of this part of the report address the future impacts of energy conditions on outdoor recreation in general and some general conclusions or trends specifically relevant to the Corps of Engineers.

Changing Life-Styles

84. A number of recreation professionals (Reidel 1980; Van Doren 1980; Maguire and Younger 1980; Kaiser and Moeller 1980) have recently written about how leisure patterns in the United States are being reshaped by major changes in demographic characteristics and social values. In fact, Reidel (1980) has stated that even if the energy situation had not changed so drastically, changing life-styles would have brought about noticeable revisions in the nature of outdoor recreation.

Age

85. With the majority of war babies moving into their thirties,

the median age of the U. S. population is rising steadily. The median age is supposed to be above 30 by the end of this year and is projected to reach 35 by the year 2000. This does not necessarily mean that the demand for physically active forms of recreation will decrease. Increases in the numbers of joggers, bicyclists, and television advertisements stressing the importance of active living all attest to the concern with physical health evident in America today. Thus, it is likely that

> "...recreation planners will face the needs of an older population which is healthier, interested in recreation, retiring earlier, living longer, and one with more available income than its predecessors" (Maguire and Younger 1980).

86. Research support for the changing age structure of several specific activities can be found in two studies. First, after summarizing data for a variety of camping market surveys, Cole and LaPage (1980) found that, between 1973 and 1978, there was a large increase in inactive (former) campers among household heads less than 30 years of age. In addition, these researchers noted that, between 1976 and 1979, there was a 13 percent decline in camping among children under 12 and an 11 percent drop in camping by teenagers (ages 12-17). Second, in a comparison of 1965, 1972, and 1977 nationwide outdoor recreation survey results, O'Leary, Peine, and Blahna (1980) discovered increases in participation in seven day use activities* among persons between 25 and 44 years of age. There were corresponding declines in younger people (ages 12-17) participating in these same activities. O'Leary, Peine, and Blahna (1980) warn that, among the younger age group, those who participate may do so more than they did in previous years, but the absolute numbers have declined.

Women

87. Recreation managers and planners will also have to deal with the changing role of women in American society. The combination of more working wives, later marriages, more frequent divorces, and an

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* Bicycling, fishing, hunting, boating (other than sailing), picnicking, pool swimming, and other outdoor swimming.

increasing social acceptance of unmarried women is likely to lead to significant changes in recreation patterns. For instance, to seek relief from work pressures, women will likely seek out the active, challenging, and high-risk activities traditionally dominated by men. There will be more shared family decisions regarding vacation plans and other recreational activities. In addition, the added income of the working wife will provide more resources for the pursuit of new activities.

Singles

88. There are not only more single women in the population today but more single men as well. Thus, recreation planners must account for the increased power of single Americans over the traditional family in shaping recreation demands.

89. For example, camping has and continues to be primarily a family activity. However, between 1973 and 1978, Cole and LaPage (1980) found substantial increases in the proportion of single campers and decreases in married campers.

Income

90. Another factor likely to affect future trends in recreation is discretionary income. Even though family incomes have been rising at a rate below that of inflation and fuel prices, Americans are still spending a tremendous amount of money on leisure pursuits. This trend toward more spending for recreation may be partially a result of the increase in dual-income households, a rising amount of leisure time, and an increasing perception of recreation as being an imperative to mental and physical well-being. As more and more discretionary income is eroded by purchases of housing, food, and energy, the willingness of people to pay to participate may be a valid indication of the importance of recreation.

Shifting population

91. One final bit of demographic data bearing important implications for recreation planning is population location. The Census Bureau has noted a shift in population from the North to the Sunbelt States. The population of the Sunbelt States is projected to grow twice as fast

as that of the Northeast and North Central States in the next 20 years. There is also a noticeable trend in movement back to the city, with 72 percent of all Americans, more than ever previously recorded, residing in urban areas.

Changing leisure ethics

92. Coupled with these apparent changes in demographic characteristics is an increased perception of recreation as being an imperative part of life. In the future, leisure may no longer be valued just as a privilege, break from work, or a luxury, but more as a civil right (Reidel 1980; Van Doren 1980). Uncertainties in terms of inflation, energy shortages, and international affairs may be making people lose faith in the future or at least feel that certain of their freedoms may no longer be available to them. As an example, many people may feel that their ability to move to a more creative job in a new location is being hampered by such economic constraints as interest rates and transportation costs. If this is true, then recreation may be increasingly seen as one of the few areas of life where one can exert personal choices and make satisfying personal achievements.

General Recreation Trends

93. The foregoing discussion of demographic, economic, and perceptual changes points to several general conclusions that can be made about the future of recreation in the United States. These conclusions should not be viewed as being separate from those reached regarding energy conditions alone. Rather, fuel prices and supply should be seen as one of the major economic factors influencing life-styles and, hence, leisure pursuits.

A strain on nearby facilities

94. One prediction that most recreation professionals generally agree on is that present economic conditions will cause a decline in long distance recreation trips and place greater demands on facilities located close to where people live. This trend has already been set in motion and is expected to continue. Furthermore, since most Americans

live in urban areas, pressures on urban and regional recreation facilities located in or near metropolitan centers will continue to climb.

95. However, with more and more money being allocated to national defense and development of alternative energy sources, local urban and rural recreation programs will continue to suffer for funding just at the time when pressures on existing facilities will be the greatest. Combining this situation with the fact that the parks and recreation profession has one of the weakest political voices, the prospects for future expansion of public recreation facilities do not look too promising. This may mean that the private recreation industry will step in to provide some of the programs that government agencies will no longer be able to supply.

Trends in activities

96. Not only are people making more use of close-to-home facilities, they are also changing the rate at which they engage in various activities. In 1973, 1976, and 1979, the A. C. Nielsen Company conducted nationwide participation surveys of 30 different sports. From 1976 to 1979, the fastest growing sports were racquetball (+283%), platform tennis (+120%), snow skiing (+40%), sailing (+19%), waterskiing (+15%), and tennis (+10%). Several of the more traditional activities, bicycling, fishing, basketball, hunting, golf, baseball, and football, all showed slight declines in popularity. Swimming continued to be the nation's favorite sport in terms of numbers participating. The next nine most popular activities in order of participation rates were bicycling, camping, fishing, bowling, boating, jogging/running, tennis, pool/billiards, and softball. High-risk activities, such as hang gliding and mountain climbing, were not measured, but there is some evidence of substantial increases in these activities among young adults (Maguire and Younger 1980; White, Schreyer, and Downing 1980).

Other probable trends

97. There are several general recreation patterns or behaviors that recreation planners and managers are likely to see in the 1980's. First, an increase in shorter distance recreation trips to alternative sites close to home may also mean a trend toward increasing length of

stay at overnight facilities. This is because recreationists will likely use such facilities as destination rather than stopover sites. Coupled with this trend will be a rise in the number of repeat visitors. For recreation planners and managers, these trends toward longer stays and more repeat visitors indicate a need to provide a variety of onsite support services (e.g., interpretive programs).

98. If the economy worsens (more job layoffs, high fuel prices, rising inflation, etc.), there may be a slight increase in the demand for alternative transportation modes to recreation sites. Most research indicates that people would rather cancel trips than travel by modes other than the automobile. However, there is some evidence that lower and middle income groups will choose to take alternate transportation modes to remote recreation areas (Maguire and Younger 1980). In addition, Corsi (1980) found that lower income households and younger individuals are willing to use low-cost public transportation for recreation travel. These findings are really not too surprising since it costs approximately 2.7 cents per mile to travel by bus, 8.5 cents per mile to travel by train, and 21 to 31 cents per mile to travel by automobile (Van Doren 1980).

99. This high cost of travel by private vehicle is reflected in the dim picture painted for recreational vehicles. In the short run, sales of RV's are expected to continue to fall. Long-run trends will depend upon improvements in RV fuel efficiency and changes in the ways people use them. Instead of driving the RV from origin to destination, households may park their RV's near or at a recreation site and use an automobile to travel to their RV (Corsi 1980). Other changes in RV use that may be expected include: seasonal rentals for spaces to park travel trailers (Cole and LaPage 1980), multi-family use of one site, and the renting out of an RV to another household for a week or two (Van Doren 1980).

100. Camping in general is expected to continue rising slowly but steadily, and there is some indication that tent camping may be regaining some of its former popularity (Bevins, LaPage, and Wilcox 1979; Propst and Abbey 1980). Remote campgrounds should experience major

declines in use (Cole and LaPage 1980).

101. Based on the responses of 12 informed camping industry representatives, Bevins, LaPage, and Wilcox (1979) present the following list of camping trends* seen as emerging between 1977 and 1985:

"1) The total number of campers will increase.

2) The percentage of all campers who are retirees will increase.

3) Future campers will seek more convenience and a greater choice of recreational activity.

4) Interest in swimming will be strong, and a swimming pool will be favored over a natural body of water.

5) Camping vacations will be longer; however, fewer campgrounds will be visited on each trip.

6) Camping at privately operated areas and in publicly managed backcountry will increase, whereas the level of camping in publicly developed areas will remain stable."

Evaluating supply, respondents foresaw the following situation in 1985:

"1) An increase in the number of developed sites in both public and private sectors. (However, one-fourth of the respondents predicted a decrease in National Forest sites, and one-third predicted a decrease in National Park sites.)

2) Daily camping fees in 1985 at private areas with a swimming pool and two-way hookup (electricity and water) will range from $10 to $15, averaging about $12. Fees at public areas with similar offerings will average $9 per day.

3) Midsummer occupancy rates at campgrounds in:
--National Parks will average 96 percent.
--National Forests will average 82 percent.
--Private franchise areas will average 83 percent.
--Private nonfranchised areas will average 76 percent."

Camping industry leaders expect the following campground management policies to be implemented by 1985:

"A. *Public campground policies to expect in 1985*:

1) Slower rate of *new* campground development, with continued expansion of *existing* campgrounds at the current rate.

2) Construction of campgrounds closer to population centers.

3) Increased separation of RV sites from tent sites within the same campground.

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* These lists are direct quotes from the work of Bevins, LaPage, and Wilcox (1979).

4) Greater reliance on privately operated concessionaire campgrounds.

5) More environmental education programs at campgrounds.

B. *Private campground policies to expect in 1985*:

1) Development of new campgrounds at a *slower rate* and expansion of existing campgrounds at the same or at an increased rate.

2) More full-season campsite rentals.

3) More onsite RV rentals.

4) Increased condominium campsite sales.

5) Greater provision of organized social and recreation programs.

6) Off-season equipment storage at the campground."

Trends in Use of Corps Facilities

102. The purpose of this section is to present some broad statements about trends in recreational use of Corps facilities with specific planning and management implications. Most of what has been previously written concerning recreation trends in general also applys to Corps facilities. However, there are some unique characteristics about Corps projects that will cause certain of these general trends to be more relevant than others. It is recognized that, because of the decentralized nature of the Corps, management strategies, relative influences of energy conditions, and visitor characteristics differ from project-to-project. Thus, Corps managers and planners will have to adapt the following discussion to their own particular situations.

Increasing levels of use

103. Because of the high cost of travel and the location of so many Corps projects in and near large population centers, it is expected that overall recreational use of Corps facilities in the 1980's will continue to increase at a steady rate. If resources (manpower and money) are not made available for expansion and new development, Corps managers will be increasingly faced with the unenviable tasks of finding ways to reduce user conflicts, provide for visitor safety and security, and,

in some cases, limit use altogether. Furthermore, approximately 30 percent of the 3175 recreation areas on Corps land are managed by quasi-public, State, local, and other Federal agencies. With more and more of these agencies facing fiscal austerity, added pressure will be exerted on the Corps to take over the responsibility for managing these areas.

The need for reliable data

104. Equally as important as the problems brought about by sheer numbers of recreationists at Corps projects are the management implications of changing visitor characteristics, recreation patterns, and types of equipment used. Verification of trends in these three factors will require a concerted effort by all Corps elements to record recreation use information in a consistent, reliable manner.

105. Procedures for collecting visitor data in this fashion are spelled out in a handbook for calculating attendance and conducting surveys at Corps projects (Mischon and Wyatt 1979). Another system for reliably collecting trend data at Corps-developed fee areas is being developed and tested at WES (Propst and Abbey 1980). It is strongly recommended that both of these systems be implemented as soon as possible.

Visitor characteristics and patterns of use

106. Results of previous studies suggest that, in general, use of Corps recreational facilities will be dominated by a slightly older population, more retired visitors, smaller families, more singles, and more single women with children. There is also some indication that the "typical" Corps visitor will be in the middle to upper income brackets, fairly well educated, and perhaps have slightly more free time than in the past.

107. While such predictions are hazardous and subject to local and regional variations, they seem to imply that there will be an increased strain on Corps day use and overnight facilities, both during the weekdays and on weekends, by a growing number of repeat visitors who use Corps areas as destination sites. The overall management and planning implication of such a scenario is that there will be increasing

demands to provide a wide range of activities for groups with different needs and for visitors who are making many repeat trips or who are staying longer per trip.

Campground and day use facilities

108. One trend of the 1970's has been for the Corps to build more and larger campgrounds. In fact, Bevins, LaPage, and Wilcox (1979) noted that, from 1974 to 1977, the number of Corps-managed campgrounds increased by 17 percent, twice the rate of growth of Corps-managed day use facilities. Thus, there seems to be a tendency for the Corps to provide for overnight use at the expense of day use. Admittedly, the Corps cannot be all things to all people. However, in areas where day use is a major activity, it may be necessary for the Corps to provide another ballfield or picnic area, for example, rather than more campsites.

109. One emerging trend in campground rehabilitation is the hardening of campsites to withstand visitor impacts and reduce maintenance costs. Often an impact pad of gravel, concrete, or other durable material underlays the designated camping area (picnic table, fire ring, fire grill, tent area, etc.). An asphalt or concrete spur leading from the circulation road to the campsite is usually provided for vehicle parking. Over the past few years, the size and length of such spurs has been increasing on many projects, supposedly in response to a trend in larger RV's and more vehicles per campsite. One only has to look at the price of concrete and asphalt to realize what an expensive undertaking such site hardening practices involve.

110. With the presently large decreases in the sales of RV's and an apparent trend toward the increasing use of tents, such large parking spurs may not always be needed. This may be partially negated, however, by the rising pattern of local campers who stay longer and are visited by friends or relatives with their own vehicles that require parking space. Whatever the case, the type of camping equipment used will require careful monitoring to avoid unnecessary construction expenses.

111. The closing down of or failure to provide primitive types of campgrounds is another trend requiring careful monitoring. It may be

that, in some areas, people simply prefer to camp in open fields with few conveniences other than a pit toilet, running water, and a picnic table. This is especially true if the primitive area is located adjacent to the lake. A primary concern of most Corps campers is to occupy a site close to the water's edge. Because of the importance of such a location and preferences for primitive facilities, some Corps managers have indicated that primitive campgrounds are often filled to capacity while developed campgrounds are only lightly used. Again, depending on project location, it may be that energy and economic conditions are heightening the trend toward the use of tents and preference for primitive facilities.

Interpretive programs and facilities

112. Providing programs and facilities that interpret the purpose of the project, history of the area, and natural features is one means of supplementing the range of activities available at Corps projects. The patterns toward increasing length of stay and more repeat visitors mean that a variety of interpretive programs will be required in order to attract visitor interest. Repetition of the same messages using the same media may result in a corresponding decline in attendance and apparent lack of interest.

113. For example, there is presently a trend toward building large, architecturally pleasing visitor centers at Corps projects. However, unless some means of varying the content of exhibit and display messages is part of the overall design of the center, use by repeat visitors is likely to be minimal.*

Future activities

114. In terms of providing a diversity of recreation activities, the Corps of Engineers, with its huge water resource, is in an advantageous position. In most cases, a wide range of water- and land-based activities is available at each project. Moreover, the A. C. Nielson surveys previously described indicate that many of the activities

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* For other suggestions on developing and evaluating interpretive programs and facilities for the Corps of Engineers, see Propst and Roggenbuck (1980).

associated with Corps projects are also the most popular on a nationwide basis. For instance, out of the 30 sports analyzed, swimming, camping, fishing, and boating were in the top ten from 1973 to 1979. Hunting ranked fourteenth; waterskiing, sixteenth; and sailing, twenty-third. Of these activities, the largest gains in participation between 1976 and 1979 occurred in sailing (+19%), waterskiing (+15%), and boating (+8%). Camping and swimming showed moderate increases during this same period, while fishing and hunting showed moderate decreases.

115. More support for the finding that boating is a continuously growing activity can be found in a recent report for the U. S. Coast Guard (Marmo 1980). The fact that participation in the sport of sailing appears to be rising at a faster rate than boating in general may lead to more conflicts between sail boaters and power boaters on some Corps projects. These potential conflicts may require managers to impose more lake zoning restrictions or use interpretive programs to separate use.

116. The importance of fishing at many projects has already been noted. In some instances (e.g., Omaha District), good fishing has overridden the negative impacts of high fuel prices and short supplies to the extent of actually causing increases in the use of some fairly remote projects.

117. In addition to the gains in day use activities recorded at some Corps projects, it is expected that participation in the seven activities described in paragraph 114 will continue to climb. Activities that are heavily influenced by energy conditions, such as power boating, waterskiing, and RV camping, may show periodic decreases during times of rapidly escalating fuel prices or short supplies. Increases or decreases in hunting and fishing are difficult to predict since they depend on such fluctuating factors as weather, management practices, and local regulations. Swimming and camping in general will continue to grow at a slow but steady rate. Gains in these two activities may be substantial at projects located near large metropolitan areas. Finally, sailing will generally continue to be one of the fastest growing activities on many Corps reservoirs, placing greater and greater demands on marina operators to provide more slips or areas for sailboat dockage.

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Table 1

Studies Examining the Effects of Energy on Tourist Behavior

Author	Study Location and Population	Content
Kamp, Crompton, and Hensarling (1979)	Texas welcome center travelers	The level of rationing and/or price at which respondents would forego their present trip
Williams, Burke, and Dalton (1979)	Chicago, Dallas, Los Angeles, New York, Phoenix, and Salt Lake City households	For selected fuel availability and price, respondents were asked how they would modify their travel plans
Norton, Hales, and Wood (1978)	Duluth, Minn., traffic	Observed vehicles and associated recreational gear on urban interstate highway
Moncrief, Mouser, and Pitrak (1977)	Midwestern United States	Examines tourist reaction to increased gasoline prices
U. S. Department of Interior (1978a)	Nationwide-Public domain recreationists and private households	Asked how the present price of gasoline has affected travel patterns and what would happen if price doubled
Solomon and George (1976)	Virginia rest stop travelers	Asked how the energy crisis had affected respondent's travel plans before and after the oil embargo
Badger, Schreiner, and Presley (1976)	McClellan-Kerr Arkansas River Navigation System recreationists and permanent and seasonal homeowners	Asked how price and shortages of gasoline and general economic conditions have affected travel plans
McCool et al. (1974)	Utah, Portland, Denver, and New Orleans households and non-Utah residents writing for information	Asked respondents to predict how far they would travel with gas priced at $.50, $.75 and $1 per gallon or if gas were rationed
U. S. Travel Data Center (1974)	U. S. households	Research done on the effects of gas shortages and price increases on people's travel behavior

Table 2

Summary of Survey Techniques Concerning Energy and Tourism

Researcher	Survey Mode	Number Surveyed	Response Rate	Sampling Method
Kamp, Crompton, and Hensarling (1979) 1978 data	Personal interviews	92	Not given	Not given
Williams, Burke, and Dalton (1979) early 1979 data	Mailback questionnaire	1,500	22.4%	No details given
Norton, Hales, and Wood (1978) 1977/78 data	Observation	All vehicles	Not applicable	All vehicles between 1 and 5 p.m. on Fridays
Moncrief, Mouser, and Pitrak (1977) June 1974 data	Personal interviews	478	Not given	Divided 146 counties into 10 strata according to population. Drew sample counties and individuals within each strata
U. S. Department of Interior (1978a) 1977 data	Personal interview (recreationists)	13,729	95%	Probability samples
	Telephone interview (households)	4,029	54%	
Solomon and George (1976) early 1974 data	Mailback questionnaire	383	39%	Not given
Badger, Schreiner, and Presley (1976) 1974/75 data	Personal interviews	2,101 recreationists	More than 97% for both	Random selection of areas, then sampled so many people within each of eight activities according to weights
		273 homeowners		Random selection of 1/4 of all developments around projects, then surveyed every 4th or 5th house according to development size
McCool et al. (1974) 1974 data	Mailback questionnaire	1,220	48%	Random selection of non-Utah residents writing to Utah Travel Council. Random selection of households in Utah urban areas and in Portland, Denver, and New Orleans
U. S. Travel Data Center (1974) early 1974 data	Personal interviews	1,273	Not given	Probability samples. Metropolitan areas and high income households (>15,000/year) were oversampled

Table 3

Comparison of 1977 and 1978 Attendance Figures for the Corps of Engineers*

Divisions/Districts	Recreation Days of Use 1977	1978	Percent Change 1977/78
Lower Mississippi Valley			
Memphis	1,868,096	1,590,910	-14.8
New Orleans	6,698,800	6,383,400	-4.7
St. Louis	14,915,600	14,637,100	-1.9
Vicksburg	16,412,100	17,115,100	+4.3
TOTAL	39,894,597	39,726,510	**
Missouri River			
Kansas City	13,153,000	13,961,000	+6.1
Omaha	15,120,327	15,190,770	+0.5
TOTAL	28,273,327	29,151,770	+3.1
New England†	5,386,475	5,677,247	+5.4
North Atlantic			
Baltimore	2,012,800	2,133,700	+6.0
Norfolk	176,277	285,483	+62.0
Philadelphia	1,304,870	1,280,253	-1.9
TOTAL	3,493,947	3,699,436	+5.9
North Central			
Chicago	84,202	107,500	+27.7
Detroit	945,501	1,064,900	+12.6
Rock Island	26,014,886	18,261,119	-29.8
St. Paul	13,925,714	17,016,800	+22.2
TOTAL	40,970,303	36,450,319	-11.0
North Pacific			
Portland	4,902,249	5,185,500	+5.8
Seattle	1,863,603	1,884,300	+1.1
Walla Walla	7,506,657	7,717,700	+2.8
TOTAL	14,272,509	14,787,500	+3.6
Ohio River			
Huntington	19,030,303	20,049,000	+5.4
Louisville	18,859,080	18,633,671	-1.2
Nashville	32,098,000	33,563,830	+4.6
Pittsburgh	12,118,401	13,921,600	+14.9
TOTAL			
South Atlantic			
Charleston	1,183,101	1,473,300	+24.5
Jacksonville	2,752,116	2,868,500	+4.2
Mobile	43,382,622	50,334,177	+16.0
Savannah	18,772,302	17,800,300	-5.2
Wilmington	5,718,602	5,509,700	-3.6
TOTAL	71,808,743	77,985,977	+8.6
South Pacific			
Los Angeles	5,141,800	6,021,400	+17.1
Sacramento	2,896,794	4,320,274	+49.1
San Francisco	1,309,500	1,856,100	+41.7
TOTAL	9,348,094	12,197,774	+30.5
Southwestern			
Albuquerque	1,170,300	1,244,500	+6.3
Ft. Worth	36,214,902	37,188,400	+2.7
Galveston	334,600	347,200	+3.8
Little Rock	31,704,800	34,261,100	+8.1
Tulsa	58,769,200	59,273,100	+0.9
TOTAL	128,193,803	132,314,300	+3.2
GRAND TOTAL	423,747,579	438,158,934	+3.4

* Figures provided by DAEN-CWO-R (Recreation Resource Management Branch, Office, Chief of Engineers, Washington, D. C.).

** Less than 0.1 percent change.

† The New England Division does not have separate Districts.

Table 4

Effect of Gasoline Price on Outdoor Recreation by Agency*

Effect	Federal Estate Agencies**		
	NPS	USFS	CE
The present price has resulted in:			
Fewer trips for recreation	26	24	31
Shorter trips for recreation	26	31	37
More use of public transportation for recreation	6	4	4
The doubling in gas prices would result in:			
Limiting trips taken for outdoor recreation	74	75	78
Sample size (number of people surveyed)	328	237	184

* Effects are measured in percentages.

** NPS = National Park Service; USFS = U. S. Forest Service; CE = Corps of Engineers. Source: U. S. Department of Interior (1978a).

Table 5

Summary Statistics Suggesting Trends in Recreational Use of Corps of Engineers Projects*

Divisions/Districts	Recreation Days of Use 1977	1978	Percent Change 1977/78	1979	Percent Change 1978/79	Total Number of Projects	Project Declines** 1978/79 Number	Percent	Projects Within 50 Miles of at Least One SMSA+ Number	Percent	Projects Within 50 Miles of an SMSA With 250,000 or Greater Population Number	Percent	Projects Partially or Wholly Within at Least One SMSA Number	Percent	Projects Showing Declines Greater than 50 Miles from Nearest SMSA Number	Percent
Lower Mississippi Valley																
Memphis	1,868,396	1,590,910	-14.8	2,209,853	+38.9	1	0	0	0	0	0	0	0	0	0	0
New Orleans**	475,400	417,700	-12.1	483,400	+15.7	3	1	33	3	100	3	100	2	67	0	0
St. Louis	14,915,600	14,637,100	-1.9	13,909,500	-5.0	7	3	43	4	57	3	43	1	14	1	33
Vicksburg	16,412,100	17,115,100	+4.3	15,212,890	-11.1	9	6	67	7	78	4	44	2	22	1	17
TOTAL	33,671,196	33,760,810	+0.3	31,815,643	-5.8	20	10	50	14	70	10	50	5	25	2	20
Missouri River‡																
Kansas City	13,153,000	13,961,000	+6.1	29,902,200	‡	15	0	0	9	60	4	27	1	7	0	0
Omaha	15,120,327	15,190,770	+0.5	26,022,220	‡	24	5	21	14	58	5	21	9	38	4	80
TOTAL	28,273,327	29,151,770	+3.1	55,924,420	‡	39	5	13	23	59	9	23	10	26	4	80
New England‡‡	5,386,775	5,677,247	+5.4	5,830,998	+2.7	31	6	19	31	100	30	97	5	16	0	0
North Atlantic																
Baltimore	2,012,800	2,133,700	+6.0	2,169,720	+1.7	9	4	44	9	100	7	78	1	11	0	0
Norfolk	176,277	285,483	+62.0	302,100	+5.8	2	0	0	2	100	1	50	1	50	0	0
Philadelphia	1,304,870	1,280,253	-1.9	1,598,500	+24.8	5	2	40	4	80	4	80	4	80	1	50
TOTAL	3,493,947	3,699,436	+5.9	4,070,320	+10.0	16	6	38	15	94	12	75	6	38	1	17
North Central																
Chicago	84,202	107,500	+27.7	91,200	-15.2	4	1	25	4	100	3	75	1	25	0	0
Detroit	945,501	1,064,900	+12.6	880,900	-17.3	2	2	100	0	0	0	0	0	0	2	100
Rock Island	26,014,886	18,261,119	-29.8	18,253,400	§	15	13	87	12	80	7	47	3	20	0	0
St. Paul	13,925,714	17,016,800	+22.2	18,171,000	+6.8	25	10	40	18	72	9	36	8	32	2	20
TOTAL	40,970,303	36,450,319	-11.0	37,396,500	+2.6	46	26	56	34	74	19	41	12	26	4	15
North Pacific																
Portland	4,902,249	5,185,500	+5.8	5,789,100	+11.6	16	1	6	15	94	1	6	11	69	0	0
Seattle	1,863,603	1,884,300	+1.1	1,437,000	-23.7	7	4	57	4	57	4	57	1	14	2	50
Walla Walla	7,506,657	7,717,700	+2.8	8,031,300	+4.1	8	2	25	6	75	1	12	3	38	1	50
TOTAL	14,272,509	14,787,500	+3.6	15,257,400	+3.2	31	7	23	25	81	6	19	15	48	3	43
Ohio River																
Huntington	19,030,303	20,049,000	+5.4	17,890,600	-10.8	41	18	44	36	88	33	80	10	24	2	11
Louisville	18,859,080	18,633,671	-1.2	14,797,600	-20.6	23	18	78	19	83	18	78	5	22	3	17
Nashville	32,098,000	33,563,830	+4.6	31,296,200	-6.8	10	6	60	9	90	9	90	4	40	0	0
Pittsburgh	12,118,401	13,921,600	+14.9	13,033,100	-6.4	38	28	74	35	92	35	92	18	47	2	7
TOTAL	82,105,784	86,168,101	+4.9	77,017,500	-10.6	112	70	63	99	88	95	85	37	33	7	10
South Atlantic																
Charleston	1,183,101	1,473,300	+24.5	1,298,800	-11.8	1	1	100	0	0	0	0	0	0	1	100
Jacksonville	2,752,116	2,868,500	+4.2	2,868,500	§	2	0	0	2	100	2	100	0	0	0	0
Mobile	43,382,622	50,334,177	+16.0	48,232,800	-4.2	14	6	43	13	93	8	57	8	57	0	0

(Continued)

* Figures provided by DAEN-CWO-R (Recreation Resource Management Branch, Office, Chief of Engineers, Washington, D. C.).

** According to Corps guidelines, declines in visitation are recorded only when total visitation at a given project decreases by 5 percent or more from one year to the next.

\+ SMSA = Standard Metropolitan Statistical Area.

** During 1979, the administrative jurisdiction of two projects in the New Orleans District was transferred to the Ft. Worth District. To make 1979 visitation figures comparable to 1977 and 1978 visitation figures, 1977 and 1978 recreation days of use figures were subtracted from the New Orleans District and added to the Ft. Worth District.

‡ In 1979, Missouri River Division changed its visitation recording procedures. Thus, the large jump in attendance figures between 1978 and 1979 is an artifact of the data and not due to an actual increase in visitation (see text for more detail).

‡‡ The New England Division does not have separate Districts.

§ Less than 0.1 percent change.

Table 5 (Concluded)

Division/District	Recreation Days of Use 1977	1978	Percent Change 1977/78	1979	Percent Change 1978/79	Total Number of Projects	Project Declines 1978/79 Number	Project Declines 1978/79 Percent	Projects Within 50 Miles of at Least One SMSA Number	Projects Within 50 Miles of at Least One SMSA Percent	Projects Within 50 Miles of an SMSA With 250,000 or Greater Population Number	Projects Within 50 Miles of an SMSA With 250,000 or Greater Population Percent	Projects Partially or Wholly Within at Least One SMSA Number	Projects Partially or Wholly Within at Least One SMSA Percent	Projects Showing Declines Greater than 50 Miles from Nearest SMSA Number	Projects Showing Declines Greater than 50 Miles from Nearest SMSA Percent
South Atlantic (Continued)																
Savannah	18,[illegible],[illegible]00	17,803,300	-5.2	18,846,100	+1.4	3	1	33	3	100	3	100	1	33	0	0
Wilmington	5,[illegible],[illegible]00	5,509,700	-3.6	5,031,500	-8.7	3	3	100	3	100	2	67	0	0	0	0
TOTAL	81,[illegible],[illegible]43	77,965,977	+8.6	79,477,700	-3.2	23	11	48	21	91	15	65	9	39	1	9
South Pacific																
Los Angeles	5,141,800	6,021,400	+17.1	6,191,900	+2.8	12	6	50	11	92	11	92	6	50	0	0
Sacramento	2,[illegible],[illegible]94	4,339,874	+46.1	4,410,395	+2.1	10	3	30	9	90	8	80	0	0	0	0
San Francisco	1,[illegible],[illegible]00	1,856,100	+41.7	1,800,100	-3.0	2	0	0	0	0	0	0	0	0	0	0
TOTAL	9,[illegible],[illegible]94	12,197,774	+30.5	12,402,395	+1.7	24	9	38	20	83	19	79	6	25	0	0
Southwestern																
Albuquerque	1,170,300	1,244,500	+6.3	1,347,300	+8.3	7	2	29	3	43	3	43	2	29	1	50
Ft. Worth**	42,438,362	43,154,100	+1.7	43,443,200	+0.7	21	6	29	18	86	12	57	10	47	0	0
Galveston	334,600	347,000	+3.8	992,630	+187.9§§	1	0	0	1	100	1	100	1	100	0	0
Little Rock	31,704,850	34,261,100	+8.1	32,446,000	-5.3	20	8	40	18	90	11	55	5	25	1	12
Tulsa	58,769,300	59,273,100	+0.9	55,359,800	-6.6	35	19	54	23	66	15	43	6	17	6	32
TOTAL	134,417,202	138,280,000	+2.9	133,589,930	-3.4	84	35	42	63	75	42	50	24	29	8	23
GRAND TOTAL	423,747,579	438,158,934	+3.4	448,782,806	+2.4	426	185	43	345	81	257	60	129	30	30	16

§§ Large increase in use due to major expansion of one recreation area.

APPENDIX A: ADDITIONAL SOURCES OF ENERGY- AND TOURISM-RELATED INFORMATION

1. The following is a list and description of some information sources which, although not cited in this report, may be of interest to those interested in monitoring energy/tourism trends.

a. American Automobile Association (Northern Virginia). Phone: (202) 222-6334.

Collects monthly data on gasoline prices and availability (number of gas stations open) by state and by region. Also forecasts shortages of gasoline. Information published in periodic reports.

b. Brazelton, D. 1979. Recreation use projections and needs report. U. S. Army Corps of Engineers, Rock Island District, Clock Tower Building, Rock Island, IL 61201.

Uses Recreation Resource Management System (RRMS) data and population figures to project for years 2000 and 2025 total visitation and activity days of use for seven activities (picnicking, camping, swimming, waterskiing, boating, fishing, and hunting) on Mississippi River Pools 11-22. Numerous data limitations; author warns that data are "useful for comparison purposes only."

c. Goeldner, C. R. 1978. Where to find travel research facts. Journal of Travel Research, 17 (1): 3-13.

Comprehensive list of information sources on tourism, travel, and recreation; annotations, addresses, and prices.

d. Lundberg Letter. P. O. Box 3996, North Hollywood, CA 91609.

Weekly reports prepared by private firm concerning trends in oil marketing, gasoline prices, gasoline consumption, and so on. Based on nationwide survey of 17,000 service stations and analyses of petroleum industry data. Price: $231/year.

e. Machlis, Gary E. Project Leader, Cooperative Park Studies Unit. College of Forestry, Wildlife and Range Sciences, University of Idaho, Moscow, ID 83843. Phone: (208) 885-7911.

New research program aimed at finding out what role tourism plays in explaining trends in energy demands in the Pacific Northwest. Also conducts workshops in applying travel/energy data to recreation planning and methods of energy conservation in recreation areas.

f. Somersan, Ayse. Recreation Resources Center, University of Wisconsin, 1815 University Avenue, Madison, WS 53706. Phone: (608) 263-2621.

Ms. Somersan is Principal Investigator of a market survey of urban residents in Wisconsin. Purpose of study is to find out if people will take public transportation to existing private and public recreation areas. Also interested in who would provide such a service and how it would be implemented.

g. U. S. Department of Energy, Energy Information Administration. 1979. Federal Energy Data System (FEDS) Statistical Summary Update. DOE/EIA-0192, Order No. 303. Prepared by J. Paul Galliker, Office of Consumption Data Systems.

Displays state-by-state breakdown of energy consumption by major economic sectors from 1960-1977. Of particular interest to the Corps may be Transportation Sector energy consumption broken down into such categories as highway gasoline, aviation gasoline, and marine gasoline. Data given in units of trillion BTU's and gallons for United States as a whole, each state, ten Department of Energy regions, and nine Census Divisions. Computerized system -- continually updated.

Available from:

National Technical Information Service
U. S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161

and

Superintendent of Documents
U. S. Government Printing Office
Washington, D. C. 20402
Stock No. 061-003-00037-1

h. _____. 1978. End use energy consumption data base: Series 1 tables. DOE/EIA-0014, PB-281 817. Office of Energy Data. Available from National Technical Information Service (see address above).

Provides data on fuel use by mode of transportation for United States as a whole and by Census Divisions. For example, amount of motor gasoline used by passenger vehicles for social and recreational purposes in two categories: (1) urban streets and local rural roads; (2) main rural roads. Estimates only -- not primary data.

i. U. S. Department of Interior, Heritage Conservation and Recreation Service. Federal Recreation Fees: 1976, Including the Annual Federal Recreation Area Visitation Data.

For fee and nonfee areas, document provides number of visitor hours and recreation days by agency and by state.

j. U. S. Travel Data Center. L Street N.W., Washington, D. C. 20036. Contact: Ms. Suzanne Cooke. Phone: (202) 293-1040.

Independent, nonprofit research center devoted to travel and tourism. Provides summaries of secondary data. Also conducts monthly telephone surveys of 1000 randomly selected households per month. Results of this survey include data on trips of 75 miles or more one-way (number of trips, number of people, length of stay, type of transportation, purpose of trip, effect of gasoline station closures, and so on). For a price, other researchers may add questions to this survey. Can obtain quarterly data summaries for $10.00 per copy.

In accordance with letter from DAEN-RDC, DAEN-ASI dated 22 July 1977, Subject: Facsimile Catalog Cards for Laboratory Technical Publications, a facsimile catalog card in Library of Congress MARC format is reproduced below.

Propst, Dennis B.
Impact of the energy crisis on Corps of Engineers recreation program : final report / by Dennis B. Propst (Environmental Laboratory, U.S. Army Engineer Waterways Experiment Station). -- Vicksburg, Miss. : The Station ; Springfield, Va. : available from NTIS, [1981].
45, [9] p. ; 27 cm. -- (Miscellaneous paper / U.S. Army Engineer Waterways Experiment Station ; R-81-2)
Cover title.
"August 1981."
"Prepared for Office, Chief of Engineers, U.S. Army."
At head of title: Recreation Research Program.
Bibliography: p. 43-45.

1. Energy conservation. 2. Power resources. 3. Recreation. 4. Recreational areas. I. United States. Army. Corps of Engineers. Office of the Chief of Engineers. II. U.S. Army Engineer Waterways

Propst, Dennis B.
Impact of the energy crisis on Corps of Engineers : ... 1981. (Card 2)

Experiment Station. Environmental Laboratory.
III. Title IV. Series: Miscellaneous paper (U.S. Army Engineer Waterways Experiment Station) ; R-81-2.
TA7.W34m no.R-81-2